

## REMARKS

Claims 1-37 were pending in the application with Claims 1-26 being withdrawn as a result of an earlier restriction requirement. Claim 27 has been amended and Claims 1-26 have been cancelled, leaving Claims 27-37 for consideration in the present amendment.

Support for the amendment to Claim 27 can be found in Figure 2 and paragraph 71. No new matter has been introduced by these amendments.

Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

### 35 U.S.C. § 103(a) Rejection

Claims 27-37 have been rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over GB Patent No. 2,263,108 to Imrie et al. (hereinafter “Imrie”) in view of U.S. Patent No. 6,203,688 to Lipsztajn et al (hereinafter “Lipsztajn”) with reference to U.S. Patent No. 5,106,465 to Kaczur et al. (hereinafter “Kaczur”) and U.S. Patent No. 6,413,416 to Buchan (hereinafter “Buchan”). Applicants respectfully traverse these rejections.

Independent claim 27, as amended, is directed to a system for producing chlorine dioxide comprising, *inter alia*, an electrochemical acidification cell comprising an anode compartment comprising an anode, a cathode compartment comprising a cathode, and a central compartment positioned between the anode and cathode compartments, wherein the central compartment comprises a cation exchange material and an outlet in fluid communication with a conduit; an alkali metal chlorite solution in fluid communication with the central compartment of the acidification cell and in fluid communication with an effluent from the anode compartment; a water source in fluid communication with the anode and cathode compartments, wherein operation of the electrochemical acidification cell produces a first feedstream comprising chlorous acid from the conduit.



The cited references, individually nor in combination, fail to teach or suggest that the electrochemical acidification cell is configured such that the alkali metal chlorite solution is in fluid communication with the central compartment of the acidification cell and in fluid communication with an effluent from the anode compartment. As demonstrated in its examples, Applicant's have obtained efficiencies greater than 90% using the claimed system. To achieve maximum efficiencies in this system, it is desirable that conversion efficiency of the alkali metal chlorite solution to chlorous acid is quantitative. Because Applicants' system has been optimized for dilute alkali metal chlorite solutions, the effluent from the anode compartment is used to dilute the sodium chlorite solution to a desired level. The effluent in the anode compartment will contain protons that did not pass through the permselective membranes to the central compartment. By using the anode effluent in this manner, conversion efficiency of dilute sodium chlorite solutions is believed to increase. Moreover, electrolysis of water in the anode compartment produces oxygen (O<sub>2</sub>), which serves to increase the oxidation strength for the conversion of chlorite to chlorous acid. As noted in Example 1 and shown in FIG. 7, the overall conversion efficiency of the alkali metal chlorite solution to chlorine dioxide was 93.3 %, which is significantly higher than that reported in the prior art references, e.g., Lipsztajn, and Kaczur. As such, a prima facie case of obviousness has not been established.

In view of the foregoing, the rejection is requested to be withdrawn. Accordingly, it is requested that the rejection applied to Claims 27 to 37 be withdrawn.

#### Provisional Rejection

Claims 27-37 are provisionally rejected on the ground of non-statutory obviousness type double patenting as being unpatentable over Claim 23-26 and 28-47 of co-pending Application No. 10/683,056 in view of Buchan.

Applicants submit herewith a provisional terminal disclaimer rendering the rejection moot.



It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,  
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